

7-3 Skills Practice**Logarithms and Logarithmic Functions****Write each equation in exponential form.**

1. $\log_3 243 = 5$ $3^5 = 243$

2. $\log_4 64 = 3$ $4^3 = 64$

3. $\log_9 3 = \frac{1}{2}$ $9^{\frac{1}{2}} = 3$

4. $\log_5 \frac{1}{25} = -2$ $5^{-2} = \frac{1}{25}$

Write each equation in logarithmic form.

5. $2^3 = 8$ $\log_2 8 = 3$

6. $3^2 = 9$ $\log_3 9 = 2$

7. $8^{-2} = \frac{1}{64}$ $\log_8 \frac{1}{64} = -2$

8. $\left(\frac{1}{3}\right)^2 = \frac{1}{9}$ $\log_{\frac{1}{3}} \frac{1}{9} = 2$

Evaluate each expression.

9. $\log_5 25$ **2**

10. $\log_9 3$ $\frac{1}{2}$

11. $\log_{10} 1000$ **3**

12. $\log_{125} 5$ $\frac{1}{3}$

13. $\log_4 \frac{1}{64}$ **-3**

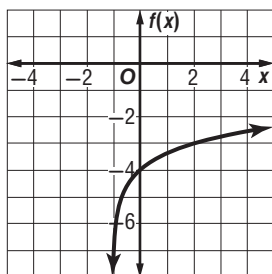
14. $\log_5 \frac{1}{625}$ **-4**

15. $\log_8 512$ **3**

16. $\log_{27} \frac{1}{3}$ $-\frac{1}{3}$

Graph each function.

17. $f(x) = \log_3 (x + 1) - 4$



18. $f(x) = -\log_5 x + 2.5$

